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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,046	12/20/2001	Alexander M. Shukh	S01.12-0851/STL9652	2220

7590 03/24/2004

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EXAMINER

DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 03/24/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,046

Applicant(s)

SHUKH ET AL.

Examiner

David D. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is *still* not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art (AAPA) as shown in figure 2 and described on pages 5-10 in view of Lairson et al (US 5,822,153). Figure 2 of AAPA shows perpendicular writing element 134 including main pole 144, having a main pole tip, and return pole 140, having a return pole tip, located downstream of pole 144 relative to the rotating disc 102. Pole 144 is connected to pole

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140 at the back gap. Write gap 146 is between poles 144 and 140. Conductive coil 150 is between poles 144 and 140 to induce magnetic flux. Perpendicular reading element 136 is downstream. Reading element 136 includes top shield 138 and read sensor 138 positioned between shield 142 and return pole 140, which serves as a bottom shield for sensor 142.

AAPA also shows in figure 2 an area of disc-facing surface of the main pole tip that is less than an area of a disc-facing surface of the return pole tip.

AAPA is silent, however as to a separate pole and shield. AAPA is also silent as to the poles material being selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe. AAPA is additionally silent as to a thickness of the non-magnetic layer being approximately 1 micrometer or greater and the gap layer being 1 micrometer or less. The applied prior art is additionally silent as to the non-magnetic layer being formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten.

Lairson et al shows in figure 3 head 69 including perpendicular writing element 75 including a main pole 84 having a main pole tip and a return pole 88 having a return pole tip located downstream of pole 84 relative to rotating disc 41. Return pole 88 is connected to main pole 84 at a back gap. Write gap 86 is between poles 84 and 88. Conductive coil 93 is between poles 84 and 88 and adapted to induce magnetic flux.

Lairson et al shows in figure 2 a perpendicular read element upstream element 75 that includes top shield 77 and bottom shield 80 upstream of shield 77. Read sensor 70 is positioned between shields 77 and 80. A non-magnetic layer, which is formed of a non-magnetic insulative material, alumina (i.e. aluminous oxide), separates top shield 77 from main pole 84.

Official notice is taken of the fact that poles formed from material being selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe; a thickness of the non-magnetic layer being approximately 1 micrometer or greater and the gap layer being 1 micrometer or less; and a non-magnetic layer being formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten is notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the head of AAPA with a separate shield and pole as taught by Lairson.

The rationale is as follows: the purpose of the pole and shield is to contain and direct flux. The shield and pole need not be merged to contain and direct flux. Realizing this, one of ordinary skill in the art at the time the invention was made would have been motivated to substitute a separate shield and pole, which is well within the purview of a skilled artisan and absent an unobvious result, with a merged shield and pole because the two arrangements are art recognized equivalents.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that the pole of the applied prior art is selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer of the applied prior art is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify that a pole is selected from a

group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten, which is well within the purview of a skilled artisan and absent an unobvious result, because of the known magnetic properties for the poles and the known conductive properties of the conductive layer.

It additionally would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, which is well within the purview of a skilled artisan and absent an unobvious result, so as to optimize the writing of information to the magnetic disc.

Response to Arguments

4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

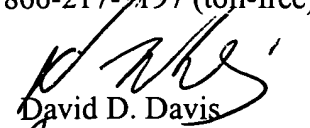
5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is (703) 308-1503. The examiner can normally be reached on Monday thru Friday between 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David D. Davis
Patman Examiner